

CLAIMS

1. A method for affixing mineral fillers on cellulose fibers in an aqueous suspension characterized by the reaction medium being an aqueous suspension of cellulose fibers, said suspension being derived from a papermaking procedure and containing hydrogen carbonates, carbonates or silicates of alkali and/or earth alkali metals, and by adding a hydroxide of the mineral filler to said reaction medium in order to precipitate the mineral filler's carbonates or silicates onto the fibers.
2. Method as claimed in claim 1, characterized in that the aqueous cellulose-fiber suspension includes sodium hydrogen carbonates.
3. Method as claimed in claim 2, characterized in that the aqueous cellulose-fiber suspension moreover includes calcium- and/or magnesium-hydrogen carbonates.
4. Method as claimed in either of claims 2 through 5, characterized in that the total alkalimetric titer of the aqueous suspension is between 2 and 30°F.
5. Method as claimed in one of claims 2 through 5, characterized in that the aqueous suspension comprises between 20 and 1,000 ppm of sodium ions (Na^+).
6. Method as claimed in one of claims 3 through 6, characterized in that the aqueous suspension contains between 5 and 200 ppm calcium ions (Ca^{2+}) and/or between 5 and 200 ppm magnesium ions (Mg^{2+}).
7. Method as claimed in one of the above claims, characterized in that the hydroxide of the mineral filler is a calcium hydroxide.
8. Method as claimed in claim 7, characterized in that the calcium hydroxide is added in the form of concentrated milk or in soluble form.

9. Method as claimed in claim 8, characterized in that said milk comprises calcium hydroxide particles of which the mean diameter is less than 6 μm .

10. Method as claimed in one of the above claims, characterized in that, following the stage in which the mineral filler's carbonates or silicates are precipitated onto the fibers, a gas-containing carbon dioxide is injected into the aqueous solution in order to neutralize and stabilize the pH of the aqueous cellulose-fiber suspension.

11. Method as claimed in one of the above claims, characterized in that the aqueous cellulose-fiber suspension derived from papermaking is based on a bleached or unbleached chemical pulp of paper fibers, on a mechanical pulp or on a thermomechanical pulp or on their mixtures.

12. A manufacturing process for sheets of paper, characterized by

(a) preparing or providing a manufacturing composition based on water and on a bleached or unbleached chemical pulp of paper fibers, on a mechanical or thermomechanical pulp, or on their mixtures, comprising at least alkali metal and/or earth alkali metal ions, and silicate or carbonate and hydrogen carbonate ions,

(b) adding to said composition a hydroxide of a mineral filler to affix said mineral filler onto the paper fibers, and

(c) forming a wet sheet of paper on a papermaking machine from the paper fibers which were precipitate-loaded in suspension and drying said sheet.

13. Process as claimed in claim 12, characterized in that it furthermore includes

(d) recovering the drip waters of stage (c) and injecting into them a gas-containing carbon dioxide to neutralize and stabilize the pH of said waters, and

(e) recycling the waters thusly processed into the manufacturing composition of stage (a).

14. Process as claimed in either of claims 12 or 13, characterized in that the manufacturing composition includes sodium and hydrogen carbonate ions in ionic equilibrium.

15. Process as claimed in one of claims 12 through 14, characterized in that the manufacturing composition is derived from a pulp based on de-inked recovered paper.

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